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UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF CALIFORNIA

TASH HEPTING, GREGORY HICKS, CAROLYN JEWEL and ERIK KNUTZEN, on Behalf of Themselves and All Others Similarly Situated,,	No. C-06-0672-VRW
Plaintiffs,	**CLASS ACTION**
v.	**DECLARATION OF J. SCOTT MARCUS IN SUPPORT OF PLAINTIFFS' MOTION FOR PRELIMINARY INJUNCTION**
AT&T CORP., et al.,	Date: June 8, 2006 Courtroom: 6, 17th Floor Judge: Hon. Vaughn Walker
Defendants.	

REDACTED PUBLIC VERSION

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LIST OF EXHIBITS

A	Curriculum vitae of J. Scott Marcus
B	Eric Lichtblau and James Risen, Spy Agency Mined Vast Data Trove, Officials Report, The New York Times, Dec. 24, 2005
C	Barton Gellman, Dafna Linzer and Carol D. Leonnig, Surveillance Net Yields Few Suspects: NSA's Hunt for Terrorists Scrutinizes Thousands of Americans, but Most Are Later Cleared, Washington Post, Feb. 5, 2006
D	Marcus et al, "Internet interconnection and the off-net-cost pricing principle"
E	Marcus, "Call Termination Fees: The U.S. in global perspective"
F	Marcus, "What Rules for IP-enabled NGNs?"
G	"Evolving Core Capabilities of the Internet"
H	http://en.wikipedia.org/wiki/Modulation
I	http://en.wikipedia.org/wiki/Attenuation
J	http://en.wikipedia.org/wiki/Decibel
K	ADC brochure (Value-Added Module System: LGX Compatible)
L	[redacted]
M	[redacted]
N	[redacted]
O	[redacted]
P	[redacted]
Q	In the Matter of AT&T Petition for Declaratory Ruling that AT&T's Phone-to-Phone IP Telephony Services are Exempt from Access Charges, FCC WC Docket 02-361, Petition of AT&T
R	Report of the NRIC V Interoperability Focus Group, "Service Provider Interconnection for Internet Protocol Best Effort Service"
S	Ch. 14, Marcus, Designing Wide Area Networks and Internetworks: A Practical Guide (1999)
T	http://www.broadbandweek.com/newsdirect/0208/direct020802.htm, August 2, 2002
U	[redacted]
V	http://www.fcw.com/article90916-09-26-05-Print
W	http://www.att.com/news/2004/03/22-12972

X http://www.eweek.com/print_article2/0,1217,a=139716,00.asp

Y Lehman Brothers analysis of AT&T (Jan. 24, 2003)

I, J. Scott Marcus, declare under the penalty of perjury that the following is true and correct:

1. The Electronic Frontier Foundation (EFF) has asked me to render an expert opinion[1] on the implications of a declaration by Mark Klein ("Klein Declaration"), and on a series of documents alleged to have been generated by AT&T (Exhibits A, B and C to the Klein Declaration) ("Klein Exhibits"), in conjunction with Plaintiffs' Motion for a Preliminary Injunction.

2. I am strongly of the opinion that the Klein Exhibits are authentic, and I find Mr. Klein's declaration to be fully consistent with the documents and entirely plausible.

3. The EFF specifically requested that I assess whether the program described in the Klein Declaration and Klein Exhibits is consistent with media reports about a program authorized by the President of the United States, under which the National Security Agency ("NSA") engages in warrantless surveillance of communications of people inside the United States ("the Program").

4. I was asked to review the following two news articles: Eric Lichtblau and James Risen, *Spy Agency Mined Vast Data Trove, Officials Report*, The New York Times, Dec. 24, 2005 (attached as Exhibit B), and Barton Gellman, Dafna Linzer and Carol D. Leonnig, *Surveillance Net Yields Few Suspects: NSA's Hunt for Terrorists Scrutinizes Thousands of Americans, but Most Are Later Cleared*, Washington Post, Feb. 5, 2006 at A01 (attached as Exhibit C).

5. I was asked to focus on the following claims in these two news articles, with respect to AT&T Corp.: that major U.S. telecommunications companies are assisting the government in carrying out the Program; that these companies have given the government direct access to telecommunications facilities physically located on U.S. soil; that by virtue of this access, the government can now monitor both domestic and international communications of persons in the United States; and that surveillance under the Program is conducted in several stages, with the early stages being computer-controlled collection and analysis of communications and the last stage being actual human scrutiny.

6. In the sections that follow, I present my qualifications, and provide an overview of

[1] Attached hereto as Exhibit A is my curriculum vitae.

the implications of the Klein Declaration and Klein Exhibits. I present my conclusions in regard to the scope of the program, and the volume of data that was captured. I also explain why I find credible Mr. Klein's allegation that the room described was a secure facility, intended to be used for purposes of surveillance on a very substantial scale.

QUALIFICATIONS

7. For more than 30 years, I have worked in a wide range of positions involving computers, data communications, economics, and public policy. This declaration draws on my experience in several of these positions, and in several different academic disciplines.

8. From March 1990 to July 2001, I held a series of responsible positions with Bolt, Beranek and Newman (which was renamed BBN Corp.) and with its successor companies, GTE Internetworking and Genuity, culminating in my work as Chief Technology Officer (CTO) of Genuity.

9. BBN Corp. was acquired by GTE Corp. in 1997. The portion of BBN that functioned as an Internet Service Provider (ISP)[2] became GTE Internetworking, a wholly owned subsidiary of GTE.

10. In 2000, at the time of the Bell Atlantic – GTE merger (which formed Verizon), GTE Internetworking was spun out into an independent company in order to satisfy regulatory obligations relevant to the merger. The independent firm was called Genuity.

11. My primary engineering competence is as a designer of large scale IP-based[3] data networks.

12. Immediately following BBN's acquisition by GTE, I headed the team of systems architects and network engineers who developed the overall architectural design for GTE Internetworking's new data network. The team, comprising of as many as 50 senior engineers at various times, translated general business and marketing requirements into a comprehensive set of

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[2] An *Internet Service Provider (ISP)* is an organization that enables other organizations to connect to the global Internet. ISPs often provide additional supporting services to enable electronic mail (e-mail) and to permit domain names (such as www.fcc.gov) to be recognized.

[3] All Internet traffic is *IP-based, i.e.* based on the Internet Protocol. I expand on this discussion in the section in which I discuss "Traffic captured".

high level engineering designs. This was a project of substantial scope and scale. The new network transformed 13,000 miles of dark fiber[4] into a single integrated network providing nationwide (and ultimately global) high speed Internet access services, and support for consumer Internet access via broadband and dial-up, and high speed data services for large enterprises. In terms both of scope and of technology, this network was at the state of the art of the day. The network was viewed as a technical and economic success, and became in short order one of the largest Internet backbone networks in the world – in terms of traffic carried, it could be viewed as the fourth largest Internet *backbone*[5] in the world for much of the time that I was there.

13. I have some experience with AT&T's network at its inception. When AT&T initially entered the Internet business in 1995, they contracted with my firm, BBN, to provide the underlying service. In effect, they "private labeled" a BBN service. They provided connections to their customers over dedicated circuits, which were cross-connected to BBN's Internet network. The customer perceived an AT&T-branded service, but BBN provided the acual ISP services. I was BBN's lead technical person for this endeavor.

14. BBN and AT&T conducted exploratory, but ultimately unsuccessful, discussions about building an Internet backbone together. AT&T ultimately decided to implement their own Internet backbone network (the Common Backbone [CBB],[6] which is the same name used in these documents), and thus to assume the ISP functions that had previously been provided by BBN. The initial design of the CBB reflected AT&T's experience in working with BBN.

15. In addition to the GTE Internetworking's own Internet backbone, and the work with AT&T, I designed a number of networks for commercial and government customers. I did the initial design work and cost analysis for a very large dial-up network for America Online in 1995.

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4 Fiber optics are discussed later in this declaration. Dark fiber is fiber optic cable that is not yet carrying traffic.

5 The term *backbone* is widely used in the industry, but not precisely defined. An Internet backbone can be thought of as a large ISP, many of whose customers may themselves be smaller ISPs. There is no single network that is *the Internet*; rather, the Internet backbones collectively form the core of the global Internet. The term backbone is also sometimes used to denote any large IP-based network, whether used to provide IP-based services to the public or not.

6 The AT&T Common Backbone, like backbones generally, is a large IP-based network. The CBB is used for the transmission of interstate or foreign communications.